

The CMX DL+

A/B Scan Material & Coating Thickness Gauges



The Finest in Portable Inspection!

Highlights:

- ▶ Powered by a 100MHz DSP platform using FPGA technology.
- ▶ Display Options: Grayscale 1/8 VGA, or AMOLED color 1/4 VGA.
- ▶ Two Channels—Dual pulsers and receivers.
- ▶ Up to 140Hz pulse repetition rate.
- ▶ Screen refresh: B&W 25 Hz, Color 120 Hz.
- ▶ Adjustable gain: -30 dB to 70 dB range.
- ▶ Automatic gain control (AGC).
- ▶ Time corrected gain (TCG).
- ▶ Data storage (32 Megabit of non-volatile RAM).

CMX DL+ SPECIFICATIONS

Physical

Size:

Width (2.5in/63.5 mm)
Height (6.5 in/165 mm)
Depth (1.24 in/31.5 mm)

Weight: 13.5 ounces (with batteries).

Keyboard: Membrane switch pad with twelve tactile keys.

Operating Temperature:
14 to 140F (-10C to 60C)

Case: Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Data Output: Bi-directional RS232 serial port. Windows® PC interface software.

Display(Two Options): 1/8in VGA grayscale display (240 x 160 pixels). Viewable area 2.4 x 1.8in (62 x 45.7mm). EL backlit (on/off/ auto). 25 Hz screen refresh rate.

1/4 VGA AMOLED color display (320 x 240 pixels). Viewable area 1.7 x 2.27 in (43.2 x 57.6 mm). 120 Hz screen refresh rate.

Ultrasonic Specifications

Measurement Modes:

Coating Off: Pulse-Echo (P-E)

Coating On: Pulse-Echo Coating (PECT)

Temp Comp: Pulse-Echo Temperature Compensation (PETP)

Thru-Paint: Echo-Echo (E-E)

Thru-Paint Verify: Echo-Echo Verify (E-EV)

Coating Only: Coating (CT)

Pulser: Dual square wave pulsers.

Receiver: Dual receivers - manual or AGC gain control with 110dB range (limited). Adjustable damping with color option.

Timing: Precision 25 MHz TCXO with single shot 100 MHz 8 bit ultra low power digitizer.

Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells.

Alkaline: grayscale 35 hrs, color 12 hrs.
Nicad: grayscale 10 hrs, color 5 hrs.

Power saving DIM feature for color display.

Auto power off if idle 5 minutes.

Battery status icon.

Transducer

Transducer Types:

Dual / Single Element (1 to 15 MHz).

Flaw Prove Up (1 to 10MHz).

Locking quick disconnect
"00" LEMO connectors.

Standard 4 foot cable.

Custom transducers and cable lengths available for special applications.

Measuring

Pulse-Echo Mode (P-E) - (Pit & Flaw Detection) measures from 0.025 to 19.999 inches (0.63 to 508 millimeters).

Pulse-Echo Coating Mode (PECT) - (Material, Coating, Pit & Flaw Detection); Material: 0.025 to 19.999 inches (0.63 to 508 millimeters). Coating: 0.001 to 0.100 inches (0.01 to 2.54 millimeters).

Pulse-Echo Temp Comp Mode (PETP) - (Pit & Flaw Detection) Auto temperature compensation - measures from 0.025 to 19.999 inches (0.63 to 508 millimeters).

Echo-Echo Mode (E-E) - (Thru Paint & Coatings) measures from 0.100 to 4.0 inches (2.54 to 102 millimeters). Range will vary +/- depending on the coating.

Echo-Echo Verify Mode (E-EV) - (Thru Paint & Coatings) measures from 0.100 to 1.0 inches (2.54 to 102 millimeters). Range will vary +/- depending on the coating.

Coating Only Mode (CT) - (Coating Thickness) Measures from 0.0005 to 0.100 inches (0.0127 to 2.54 millimeters). Range will vary +/- depending on the coating.

Flaw Mode: Basic mode using angle beam transducers. Color offers D1.1 linearity.

Resolution: +/- 0.001 inches (0.01 mm).

Velocity Range:

0.0492 to 0.5510 inches/ μ s
1250 to 13995 meters/sec

Single and Two point calibration option for material & coating, or selection of basic material types.

Units: English & Metric

Display

Large Digits - Standard thickness view. Digit Height: 0.700 inches (17.78 millimeters). Color 0.565 in (14.35 mm).

A-Scan - Rectified +/- (flaw view), RF (full waveform view).

B-Scan - Time based cross section view. Display speed; grayscale (15 secs per screen), color (variable speed).

Scan Bar Thickness - 6 readings per second. Viewable in B-Scan and Large Digit views.

Repeatability Bar Graph - Bar graph indicates stability of reading.

Feature Status Bar - Indicates features currently active.

Memory (CMX DL)

Log Formats:

Grid (alpha numeric)

Sequential (auto identifier)

Cell contents:

Graphics On: grayscale 16,000 & color 8,000 readings, A/B Scan image, & gauge settings for every reading.

Graphics Off: 210,000 readings (coating, material, min & max).

OBSTRUCT to indicate inaccessible locations.

Connections

Output: RS232 serial interface. PC software & USB converter cable included.

Transducer Connectors: Two LEMO 00 connectors.

Certification

Thickness Gauge: Factory calibration traceable to NIST & MIL-STD-45662A.

Warranty

2 year limited



MADE IN THE USA

Distributed by:



DAKOTA ULTRASONICS

1500 Green Hills Road, #107

Scotts Valley, CA 95066

Ph: (831) 431-9722

Fax: (831) 431-9723

Website: www.dakotaultrasonics.com

Email: info@dakotaultrasonics.com

DAKOTA ULTRASONICS

Performance, Power & Perfection!

The CMX Series

Material & Coating Thickness Gauges

Electronic Platform:

- ▶ Powered by a 100MHz DSP platform using FPGA technology.
- ▶ Two Channels - Dual pulsers and receivers.
- ▶ Up to 140Hz pulse repetition rate.
- ▶ Display update rate of 25 times per second.
- ▶ Adjustable gain settings - vlow, low, med, hi, vhi.
- ▶ Automatic gain control (AGC).
- ▶ Time corrected gain (TCG).
- ▶ Massive data storage (32 Megabit of non-volatile RAM).

Features:

- ▶ Measurement modes: Pulse-Echo, Pulse-Echo w/Coating, Pulse-Echo w/Temperature Compensation, Echo-Echo, Echo-Echo Verify & Coating Only.
- ▶ Automatic: probe zero, probe recognition, and temperature compensation.
- ▶ Stores up to 64 custom setups for specific applications.
- ▶ High Speed Scan of up to 50 readings per second.
- ▶ Audible/visual alarm with hi and lo limit settings.
- ▶ Built-in differential mode for QC inspections.
- ▶ Time based B-Scan feature for cross section material scans.
- ▶ Data storage formats: Alpha numeric grid and sequential w/auto identifier.
- ▶ Windows PC software included.
- ▶ 2 year limited warranty.

SOUND SOLUTIONS

CMX & CMX DL SPECIFICATIONS

Physical

Size:

Width (2.5in/63.5 mm)
Height (6.5 in/165 mm)
Depth (1.24 in/31.5 mm)

Weight: 13.5 ounces (with batteries).

Keyboard: Membrane switch pad with twelve tactile keys.

Operating Temperature:
14 to 140F (-10C to 60C)

Case: Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Data Output: Bi-directional RS232 serial port. Windows® PC interface software.

Display: 1/8in VGA grayscale display (240 x 160 pixels). Viewable area 2.4 x 1.8in (62 x 45.7mm). EL backlit (on/off/auto).

Ultrasonic Specifications

Measurement Modes:

Coating Off: Pulse-Echo (P-E)

Coating On: Pulse-Echo Coating (PECT)

Temp Comp: Pulse-Echo Temperature Compensation (PETP)

Thru-Paint: Echo-Echo (E-E)

Thru-Paint Verify: Echo-Echo Verify (E-EV)

Coating Only: Coating (CT)

Pulser: Dual square wave pulsers.

Receiver: Dual receivers - manual or AGC gain control with 110dB range (limited).

Timing: Precision 25 MHz TCXO with single shot 100 MHz 8 bit ultra low power digitizer.

Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 35 hours on alkaline and 10 hours on NiCad (charger not included).

Auto power off if idle 5 minutes.

Battery status icon.

Transducer

Transducer Types:

Dual Element (1 to 10 MHz).

Locking quick disconnect
"00" LEMO connectors.

Standard 4 foot cable.

Custom transducers and cable lengths available for special applications.

Measuring

Pulse-Echo Mode (P-E) - (Pit & Flaw Detection) measures from 0.025 to 19.999 inches (0.63 to 508 millimeters).

Pulse-Echo Coating Mode (PECT) - (Material, Coating, Pit & Flaw Detection); Material: 0.025 to 19.999 inches (0.63 to 508 millimeters). Coating: 0.001 to 0.100 inches (0.01 to 2.54 millimeters).

Pulse-Echo Temp Comp Mode (PETP) - (Pit & Flaw Detection) Auto temperature compensation - measures from 0.025 to 19.999 inches (0.63 to 508 millimeters).

Echo-Echo Mode (E-E) - (Thru Paint & Coatings) measures from 0.100 to 4.0 inches (2.54 to 102 millimeters). Range will vary +/- depending on the coating.

Echo-Echo Verify Mode (E-EV) - (Thru Paint & Coatings) measures from 0.100 to 1.0 inches (2.54 to 102 millimeters). Range will vary +/- depending on the coating.

Coating Only Mode (CT) - (Coating Thickness) Measures from 0.0005 to 0.100 inches (0.0127 to 2.54 millimeters). Range will vary +/- depending on the coating.

Resolution:

+/- 0.001 inches (0.01 mm)

Velocity Range:

0.0492 to 0.5510 inches/ μ s
1250 to 13995 meters/sec

Single and Two point calibration option for material & coating, or selection of basic material types.

Units:

English & Metric

Display

Large Digits - Standard thickness view. Digit Height: 0.700 inches (17.78 millimeters).

B-Scan - Time based cross section view. Display speed of 15 secs per screen.

Scan Bar Thickness - 6 readings per second. Viewable in B-Scan and Large Digit views.

Repeatability Bar Graph - Bar graph indicates stability of reading.

Feature Status Bar - Indicates features currently active.

Memory (CMX DL)

Log Formats:

Grid (alpha numeric)

Sequential (auto identifier)

Cell contents:

Graphics On: 16,000 readings ,BScan image, & gauge settings for every reading.

Graphics Off: 210,000 readings (coating, material, min & max).

OBSTRUCT to indicate inaccessible locations.

Memory:

32 megabit non-volatile ram.

Connections

Output: RS232 serial interface. PC software & USB converter cable included.

Transducer Connectors: Two LEMO 00 connectors.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

Warranty

2 year limited



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DAKOTA ULTRASONICS

The PX Series

Precision Thickness Gauges



THE PX SERIES of Precision Thickness Gauges utilize state-of-the-art digital technology to produce fast and accurate readings. The gauges are designed with the user in mind. They are **PACKAGED** in an all aluminum sealed case making it resistant to the working environment. The gauges are simple to operate and are loaded with the **FEATURES** you have requested: Alarm Mode, Differential Mode, Internal Data-Logging and RS-232 data output port to interface with a computer or other data acquisition system.

The gauges have a **MEASURING RANGE** from 0.0060 to 1.0000 inch, (0.15 to 25.40 mm). Using a single element delay Line transducer, the gauges will measure thin materials in **ECHO-TO-ECHO MODE** and automatically switch to **INTERFACE-ECHO MODE** when measuring thicker materials and plastics.

THE PX-7'S echo-to-echo mode offers the user the ability to measure the thickness of materials without removing the paint or the coating.

SOUND SOLUTIONS

THE PX SERIES THICKNESS GAUGES

DAKOTA ULTRASONICS PX Series has arrived. The variety of features offered in the PX-7 and PX-7DL allow the user to select a quality tool that will meet or exceed their specific application needs. In the Echo-to-Echo Mode you have the ability to measure the thickness of materials without removing the paint or the coating. Our 5 year limited warranty indicates how we feel about the reliability and durability of the **PX SERIES**.

SPECIFICATIONS

Physical

Weight:

10 ounces (with batteries).

Size:

2.5 W x 4.5 H x 1.24 D inches
(63.5 W x 114.3 H x 31.5 D mm).

Operating Temperature:

-20 to 120F (-30 to 50C).

Case:

Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Keypad

Sealed membrane that is resistant to both water and petroleum products.

Nine tactile-feedback keys.

Transducer

Single element with delay tip.

10 to 22 MHz frequency range.

Locking quick disconnect LEMO connectors.

4 foot cable.

Custom transducers available for special applications.

Warranty

5 year limited.



Power Source

Two 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 25 hours on alkaline and 10 hours on NiCad.

Display flashes when battery is low. Unit turns off automatically when battery is too low to operate reliably.

Display

Multi-function 4.5 digit liquid crystal display with 0.500 inch numerals, backlit for use in poor light conditions.

Backlight is selectable on/off/auto (illuminates only when taking a measurement).

Bar graph indicates stability of reading.

Computer Interface

RS232 serial interface. PC software & USB converter cable included.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

Memory (PX-7 DL)

Automatic Data Logging System 1000 reading capacity, (10 files of 100 readings each).

OBST indicates no reading.

Complete with data acquisition software and cables.

Measuring

Range:

Measures from 0.006 to 1.000 inches (0.15 to 25.4 millimeters). Range dependent on material and transducer type.

Units:

English & Metric

Resolution:

0.0001 inches (0.001 millimeters).

Velocity Range:

0.0492 to .3937 in/ μ s.
(1250 to 10,000 meters/second).

Four readings per second, single point measurement.

Single point calibration.

Features

Differential Mode:

Enter acceptable thickness value, unit will display +/- the difference from the value entered.

Alarm Mode:

Enter a minimum acceptable thickness value. If measurement falls outside Hi/Lo limits, red LED will illuminate and sounds beep- er. If measurement is between Hi/Lo limits, green LED will illuminate.

Data Output:

RS-232 output sends data to a serial printer, a computer or other external storage device.

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DAKOTA ULTRASONICS

The **UMX-2** Underwater Material & Coating Thickness Gauge



Captures an A-Scan waveform snapshot with every measurement; viewable using our Windows PC interface software.

HIGHLIGHTS:

- ▶ 1000 ft. (300 m) depth rating.
- ▶ Probe types: Single Membrane & Dual Element.
- ▶ Automatic: Probe recognition & Zero.
- ▶ Measurement modes: Pulse-Echo, Pulse-Echo w/Coating, Echo-Echo, Triple-Echo (TCG).
- ▶ Data Storage: Alpha numeric & Sequential w/ID.
- ▶ Windows PC software included.
- ▶ 3 year limited warranty.

S O U N D S O L U T I O N S

UMX-2 SPECIFICATIONS

Physical

Size:

Length (9.0 in/229 mm).
Diameter (2.375 in/60.33 mm).

Weight:

1.5 lbs (0.680 kg) with 3 AA batteries.

Keyboard:

Single button, magnetically coupled switch.

Operating Temperature:

-20 to 140F (-29C to 60C).

Underwater Case:

High strength transparent plastic housing. Depth rating of 1000 feet (300 meters).

Data Output:

Bi-directional RS232 serial port, with USB converter. Windows® PC inter- face software.

Display:

1/2 in (12.7 mm) 4.5 digit LCD display.
3/8 in (9.5 mm) 6 alpha LCD display.
Both displays backlit (on/ off/auto).

LED Lighting: 8 blue leds (on/off).

Ultrasonic Specifications

Measurement Modes:

Dual Element Probes

Pulse-Echo (P-E): Coating Off.

Pulse-Echo Coating (PECT): Coating On.

Echo-Echo (E-E): Thru-Paint.

Single Element Probes

Triple-Echo (TCg): Thru-Paint.

Pulser: Dual square wave pulsers.

Receiver:

Dual receivers - manual or AGC gain control with 100 dB range.

Manual gain: Limited to 5 gain settings (vlow, low, med, high, vhigh (42 to 50 dB).

AGC: Automatic gain setting.

Timing:

Precision 25 MHz TCXO with single shot 100 MHz 8 bit ultra low power digitizer.

Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 50 hours on alkaline and 20 hours on NiCad (backlight off). 15 hours on alkaline and 8 hours on NiCad (backlight on).

Auto power off if idle 5 min.

Battery status displayed on power up.

Measuring

Pulse-Echo Mode (P-E) - (Pit & Flaw Detection) measures from 0.025 to 19.999 inches (0.63 to 508 millimeters).

Pulse-Echo Coating Mode (PECT) - (Material, Coating, Pit & Flaw Detection): Material: 0.025 to 19.999 inches (0.63 to 508 millimeters). Coating: 0.001 to 0.100 inches (0.01 to 2.54 millimeters).

Echo-Echo Mode (E-E) - (Thru Paint & Coatings) measures from 0.100 to 4.0 inches (2.54 to 102 milli- meters). Will vary based on coating.

Triple-Echo (TCg) - 0.040 to 6.00 (1 to 152 millimeters) inches in steel. Range will vary based on coating thickness, material type, and probe.

Resolution:

+/- 0.001 inches (0.01 mm).

Units:

English & Metric

Velocity Range:

0.0492 to 0.5510 in/us
1250 to 13995 meters/sec

8 fixed and 1 programmable Material Velocities (in/us):

1. Aluminum 2024	.251
2. Steel 4340	.233
3. Stainless Steel 302	.223
4. Iron	.232
5. Cast Iron	.180
6. PVC	.094
7. Polystyrene	.092
8. Polyurethane	.070
9. Custom	User

Computer Interface

RS232 serial interface. PC software & USB converter cable included.

Display

Segmented Displays:

4.5 Digit LCD - Primary measurement display.

6 Character LCD - Displays menu options.

Repeatability Bar graph - Bar graph indicates stability of reading.

Data Storage

File Formats:

Grid (alpha numeric).
Sequential (auto identifier).

Programming: Storage capacity of 1 file template. Size and dimension specified by the user.

Storage capacity: 5,000 readings, settings, and waveform graphics.

Memory:

32 megabit non-volatile ram.

Transducer

Auto Probe Zero: Applies to dual element probes only.

Transducer Types

Dual Element: 1 to 10 MHz frequency range. Custom auto recognition probes. (flaw & pit detection).

Single Element: 1 to 10 MHz frequency range - (General purpose).

LEMO underwater connectors.

Standard 4 foot cable.

Custom transducers and cable lengths available for special applications.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

IP68 rating

Warranty

3 year limited.



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DAKOTA ULTRASONICS

Take your MX-3 / MMX-6
underwater with you!

UMX Underwater Enclosure Kit

This portable solution offers off-shore inspectors a very versatile system for underwater corrosion surveys:

UMX ENCLOSURE

- ▶ Clear Plexiglas construction.
- ▶ 300 feet depth rating.
- ▶ Stainless steel connectors, latches, and control bar.
- ▶ Simple to install and operate.
- ▶ 1 year limited warranty.

MX-3 / MMX-6 GAUGES

- ▶ Aluminum extrusion construction.
- ▶ Measuring range .025" – 19.999".
- ▶ 80 hours operation on 2 AA batteries.
- ▶ Pulse-Echo (pit & flaw), and Echo-Echo (thru-paint) mode options.
- ▶ One & Two point calibration option.
- ▶ High speed scan mode.

The UMX Underwater Enclosure & MX-3/
MMX-6 Thickness Gauge Combination

SOUND SOLUTIONS

UMX UNDERWATER ENCLOSURE

Take your **MX-3** or **MMX-6** underwater with the **UMX** underwater enclosure. This custom designed housing provides a convenient method for off-shore inspections. The combination was designed to inspect for corrosion in a variety of off-shore applications: ships, pipes, storage vessels, docks, pilings and piers. The **MX-3** is a pulse-echo style thickness gauge for use on non-coated materials, while the **MMX-6** is equipped with an additional echo-echo feature to measure coated materials and eliminate the coating thickness.

SPECIFICATIONS

Physical

Weight:

MX-3 / MMX-6: 10 ounces (with batteries).

UMX: 2.2lbs (1 kg).

Size:

MX-3 / MMX-6: 2.5 W x 4.5 H x 1.24 D in (63.5 W x 114.3 H x 31.5 D mm).

UMX: 3.5 W x 7.5 H x 2.75 D in (63.5 W x 190.5 H x 69.85 D mm).

Operating Temperature:

-20 to 120 F (-30 to 50 C).

Case:

MX-3 / MMX-6: Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

UMX: Custom formed plexiglass with stainless steel shaft, connectors, and latches (gasket sealed).

Depth Rating: 300 ft. (91.44 M)

Keypad

MX-3 / MMX-6: Sealed membrane that is resistant to both water and petroleum products.

Four or Six tactile-feedback keys.

UMX: Sliding stainless steel shaft.

Transducer

Dual-element (transmit and receive).

1 to 10 MHz frequency range.

Variety of standard & underwater transducers and frequencies.

MX-3 / MMX-6: LEMO 00 connectors.

UMX: Underwater LEMO connectors.

4 foot cable.

Custom transducers and cable lengths available on request.

Power Source

Two 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 80 hours on alkaline and 20 hours on NiCad.

Display flashes when battery is low. Unit turns off automatically when battery is too low to operate reliably.

Display

Multi-function 4.5 digit liquid crystal display with 0.500 inch numerals, backlit for use in poor light conditions.

Backlight is selectable on/off/auto (illuminates only when taking a measurement).

Bar graph indicates stability of reading.

Measuring

Range:

Measures from 0.025 to 19.999 inches (0.63 to 500 millimeters). Range dependent on material and transducer type.

Units:

English & Metric.

Resolution:

0.001 inches (0.01 millimeters).

Velocity Range:

0.0492 to .5511 in/ μ s.
(1250 to 14,000 m/sec).

Four readings per second for single point measurements.

Computer Interface

RS232 serial interface. PC software & USB converter cable included.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

Warranty

MX-3 / MMX-6: 5 year limited.

UMX: 1 year limited.



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VX Velocity Gauge

The **VX** is a hand-held ultrasonic velocity gauge. When measuring materials such as casts, alloys, or plastics, the **VX** displays the speed of sound (velocity) through the material; thus giving an indication of its consistency.

The **VX** gauge has 2 measuring modes: The **Point-to-Point mode**, which is simply placing the probe to the material and the gauge will display the velocity at that point. The Scan mode allows the operator to place the probe on the material and then move the probe along the surface; when the probe is lifted from the material, it will then display the fastest velocity the gauge found on the area covered.

The **VX** is packaged in an all metal case, sealed with gaskets to protect them from harsh working environments. This gauge can go where you go, to do the work you do, saving you time and money, making fast accurate measurements.

Dakota Ultrasonics offers quality gauges that are reliable, innovative and competitively priced, all backed by the longest warranty in the business—5 full years.

VX VELOCITY GAUGE

DAKOTA ULTRASONICS rugged gauges have been designed and built to satisfy the roughest industry conditions. The variety of features offered in our gauges allow the user to select a quality tool that will meet or exceed theirand specific application needs. Our 5 year limited warranty indicates how we feel about the reliability and durability of the **VX Velocity Gauge**.

SPECIFICATIONS

Physical

Weight:

10 ounces (with batteries).

Size:

2.5 W x 4.5 H x 1.24 D inches
(63.5 W x 114.3 H x 31.5 D mm).

Operating Temperature:

-20 to 120F (-30 to 50C).

Case:

Extruded aluminum body
with nickel-plated aluminum
end caps (gasket sealed).

Keypad

Sealed membrane that is
resistant to both water and
petroleum products.

Six tactile-feedback keys.

Transducer

Dual-element (transmit and
receive).

1 to 10 MHz frequency range.

Locking quick disconnect
LEMO connectors.

4 foot cable.

Custom transducers available
for special applications.



Power Source

Two 1.5V alkaline or
1.2V NiCad AA cells.

Typically operates for
80 hours on alkaline and
20 hours on NiCad.

Display flashes when battery is
low. Unit turns off automatically
when battery is too low to
operate reliably.

Display

Multi-function 4.5 digit liquid
crystal display with 0.500 inch
numerals, backlit for use in
poor light conditions.

Backlight is selectable on/off/auto
(illuminates only when taking a
measurement).

Measurements displayed in
inches/microsecond, and
meters/second.

Bar graph indicates stability
of reading.

Certification

Factory calibration traceable to NIST
& MIL-STD-45662A.

Warranty

5 year limited.

Measuring

Range:

Measures from 0.025 to 19.999
inches (0.63 to 500 millimeters).
Range dependent on material
and transducer type.

Units:

English & Metric

Resolution:

0.001 inches (0.01 millimeters)

Velocity Range:

0.0492 to .3937 in/ μ s.
(1250 to 14,000 m/sec)

Four readings per second for
single point measurements and
sixteen per second in scan mode.

Single point calibration to known
thickness or velocity.

MADE IN THE USA

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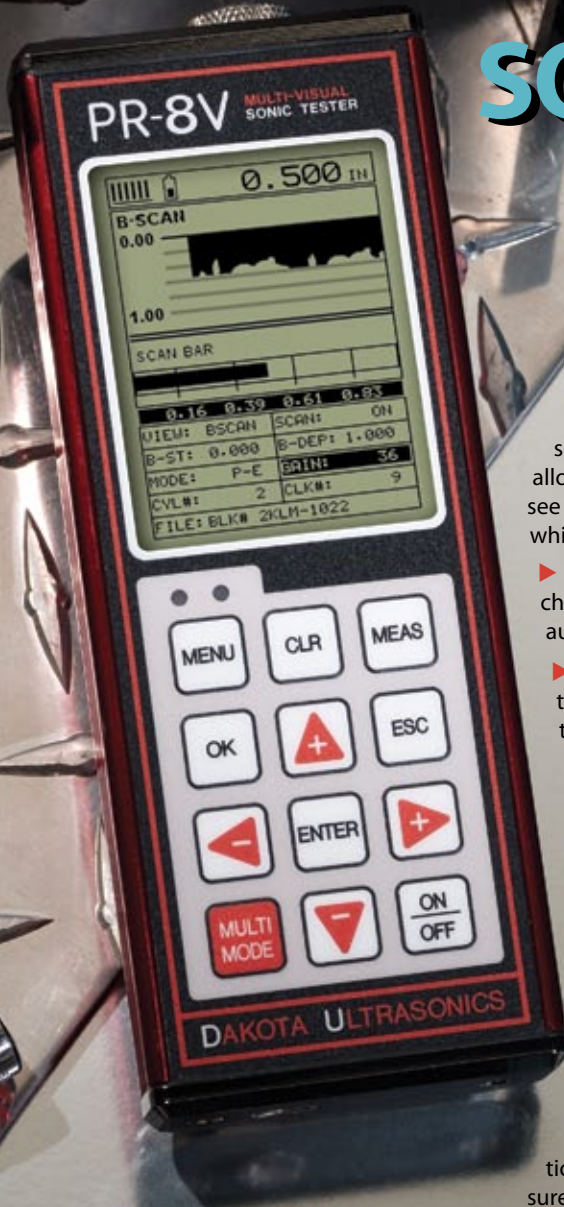
Email: info@dakotaultrasonics.com

DAKOTA ULTRASONICS

The PR-8V

SONIC TESTER

The physical size, weight, and display resolution are just a few of the benefits of the PR-8V



- ▶ The time-based B-Scan feature of the PR-8V displays a cross section of the opposite surface, allowing engine builders the ability to see the contour of the back surface in cylinders while scanning.
- ▶ Use the Multi-Mode (Echo-Echo mode) feature to measure chassis tubing with or without paint and coatings. Built-in automatic gain control.
- ▶ Selectable low, medium, and high gain settings offer the inspector the additional punch power for materials that are hard to penetrate.
- ▶ The variety of calibration options is just one more example of PR-8V's versatility.
- ▶ Store up to 64 custom setups. Factory setups available for common applications.
- ▶ The internal Data Logger of the PR-8V has been customized for both the engine builder and the chassis inspector. Selectable cylinder mapping or general alpha numeric file storage will satisfy your reporting needs.
- ▶ Built-in transducer types offer increased linearity between transducers.
- ▶ The Fast Scan feature provides a better representation during the scanning process, by making 32 measurements per second. Remove the transducer from the test material and display the thinnest measurement found.
- ▶ Use the visual and audible alarm to set Hi and Lo limits to signal the inspector when the measurements are out of tolerance.
- ▶ The PR-8V also comes complete with our Windows® PC software for transferring data to- and from a PC, and viewing B-Scans, Cylinder Maps, and general measurements.
- ▶ 2 year limited warranty.

SOUND SOLUTIONS

PR-8V SPECIFICATIONS

Physical

Size:

Width (2.5in/63.5 mm)
Height (6.5 in/165 mm)
Depth (1.24 in/31.5 mm)

Weight:

13.5 ounces (with batteries).

Keyboard:

Membrane switch pad with twelve tactile keys.

Operating Temperature:

14 to 140F (-10C to 60C)

Case:

Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Data Output:

Bi-directional RS232 serial port. Windows® PC interface software.

Display(Two Options): 1/8in VGA gray-scale display (240 x 160 pixels). Viewable area 2.4 x 1.8in (62 x 45.7mm). EL backlit (on/off/auto). 25 Hz screen refresh rate.

Ultrasonic Specifications

Measurement Modes:

Pulse-Echo - (flaws, pits, corrosion).

Echo-Echo - (thru-paint - chassis).

Pulser:

Square wave pulser.

Receiver:

Selectable low, medium, or high gain in Pulse-Echo mode or AGC gain control in Echo-Echo mode.

Timing:

20 MHz ultra low power 10 bit digitizer.

Warranty

2 year limited.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.



Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 35 hours on alkaline and 10 hours on NiCad (charger not included).

Auto power off if idle 5 minutes.

Battery status icon.

Measuring

Range:

Pulse-Echo Mode:

Standard operating mode for engines and automotive parts without painted surfaces (pits or flaws detection). Measures 0.025in. to 9.999in. (0.63mm to 254mm).

Echo-Echo Mode:

Thru-paint & coating—chassis and general body inspections. Measures from 0.050in. to 4in. (1.27mm to 102mm).

Resolution:

+/- .001 in. (0.01 mm).

Velocity Range:

.0492 to .3936 inches/μs.
1250 to 9999 meters/sec.

One and Two Point calibration option, or selection of basic material types.

Units:

English & Metric

Display

Display Views:

Large Digits - Standard thickness view.
Digit Height: 0.400 inch (10mm).

B-Scan - Time based cross section view.
Display speed of 15 secs per screen.

Scan Bar Thickness - 6 readings per second; Viewable in B-Scan and Large Digit views.

Repeatability Bar Graph - Bar graph indicates stability of reading.

Connections

Output: RS232 serial interface. PC software & USB converter cable included.

Transducer Connectors: Two LEMO 00 connectors.

Memory

12,000 readings and waveforms (alpha numeric storage).

OBSTRUCT to indicate inaccessible locations.

Memory:

16 megabit non-volatile ram.

Transducer

Transducer Types:

Dual Element (1 to 10 MHz).

Locking quick disconnect "00" LEMO connector.

Standard 4 foot cable.

Custom transducers and cable lengths available.

Features

Setups:

64 custom user-defined setups. Factory setups available for common applications.

Selectable Transducers:

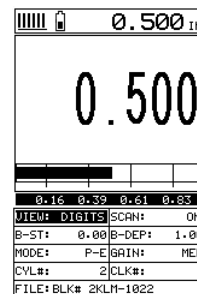
Selectable transducer types with built-in dual-path error correction for improved linearity.

Alarm Mode:

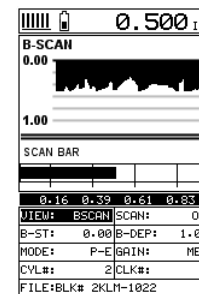
Set Hi and Lo tolerances with audible beeper and visual LEDs.

Fast Scan Mode:

Takes 32 readings per second and displays the minimum reading found when the transducer is removed. Display continuously updates while scanning.



Digits View



B-Scan View

MADE IN THE USA

Distributed by:



DAKOTA ULTRASONICS

1500 Green Hills Road, #107

Scotts Valley, CA 95066

Ph: (831) 431-9722

Fax: (831) 431-9723

Website: www.dakotaultrasonics.com

Email: info@dakotaultrasonics.com

DAKOTA ULTRASONICS



PR-8² Sonic Tester

The PR-82 is the first affordable **Sonic Tester**, utilizing state-of-the-art digital technology to produce fast and accurate readings. It requires no special training to operate.

Unlike calipers, the PR-82 will measure where there is access to only one side. This makes it valuable when measuring roll cage thickness, cylinder walls (before and after boring) and heads during porting.

The PR-82 measures in two modes. The first mode takes a measurement at the point you place the probe. The second is

the Scan mode, which is helpful when measuring cylinder walls and roll cages. Place the probe at the bottom of the cylinder and drag it to the top, the gauge will display the thinnest reading measured.

The PR-82 is a lightweight, rugged tool that is resistant to water and oil. Other features include a backlit LCD and a bar graph to indicate signal stability.

The **5 year warranty** indicates how we feel about the quality of the PR-82.

The PR-82 can go where you go, to do the work you do, saving you time and money, making fast, accurate measurements.

SOUND SOLUTIONS

THE PR-8² SONIC TESTER

With the PR-82, you can make accurate reliable measurements and scan a length of material for the thinnest point.

A partial list of the custom probes for racing applications:

• Chassis Tubing, Roll Cages*	3/16" 10MHz Flat Probe head	
• Cast Iron Cylinder Heads*	1/4" 5MHz with 1" or 9" Wand	0.60" radius
• Cast Iron & Aluminum Heads	1/4" 7.5MHz with 1" or 9" Wand	0.60" radius
• Aluminum Cylinder Heads*	1/4" 10MHz with 1" or 9" Wand	0.60" radius
• Cylinder Blocks*	1/2" 5MHz	2.00" radius

* best performance on stated material

The PR-82 comes complete, ready to use and is protected by Dakota Ultrasonics 5 year limited warranty—a statement of its quality.

Typical automotive applications are:

- Cylinder
- Head Ports
- Roll Cage
- Chassis Tubing
- Body Panels
- Windshields

SPECIFICATIONS

Physical

Weight:

10 ounces (with batteries).

Size:

2.5 W x 4.5 H x 1.24 D inches
(63.5 W x 114.3 H x 31.5 D mm).

Operating Temperature:

-20 to 120F (-30 to 50C).

Case:

Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Keypad

Sealed membrane that is resistant to both water and petroleum products.

Six tactile-feedback keys.

Transducer

Dual-element (transmit and receive).

1 to 10 MHz frequency range.

Locking quick disconnect LEMO connectors.

4 foot cable.

Custom transducers available for special applications.

Power Source

Two 1.5V alkaline or 1.2V NiCad AA cells.

Typically operates for 80 hours on alkaline and 20 hours on NiCad.

Display flashes when battery is low. Unit turns off automatically when battery is too low to operate reliably.

Display

Multi-function 4.5 digit liquid crystal display with 0.500 inch numerals, backlit for use in poor light conditions.

Backlight is selectable on/off/auto (illuminates only when taking a measurement).

Bar graph indicates stability of reading.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

Warranty

5 year limited.

Measuring

Range:

Measures from 0.025 to 19.999 inches (0.63 to 500 millimeters). Range dependent on material and transducer type.

Automotive Applications:

0.050 to 1.500 inches in casted materials.

Units:

English & Metric

Resolution:

0.001 inches (0.01 millimeters)

Velocity Range:

0.0492 to .5511 in/μs.
(1250 to 14,000 m/sec)

Four readings per second for single point measurements or 16 per second in SCAN mode.

One or Two point calibration option.



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PVX-B (Basic)

Precision Digital Thickness Gauge

Highlights:

- ▶ Powerful 150 volt square wave pulser to address a variety of common applications.
- ▶ Viewing options: Large Digits & B-Scan with Scan Bar.
- ▶ Time based B-Scan feature displays a cross section of the test material. Displays the profile of the opposite material surface.
- ▶ Transducer options: Single element Delay Line (acrylic and graphite tips for metals and thin plastics), Pencil Delay Line (tough access areas on thin materials), and Contact transducers (variety of applications).
- ▶ Hardware AGC gain control for multiple echo and thru-paint measurement.
- ▶ Multiple calibration options: One-Point, Two-Point, or selection from a Material List.
- ▶ 18 factory setups and 46 user-defined setups. User-defined setups can be edited for custom applications.
- ▶ Versatile alpha-numeric data logger for custom reporting requirements.
- ▶ The High Speed Scan feature up to 32 readings a second.
- ▶ Adjustable resolution settings: 0.001 or 0.0001 in (0.01 or 0.001 mm).
- ▶ Windows® and Mac Os PC software with bi-directional transfer.
- ▶ Visual and audible alarm with Hi/Lo limit settings.
- ▶ Multiple language support.
- ▶ 2 year limited warranty.

PVX-B SPECIFICATIONS

Physical

Size:

Width (2.5in/63.5 mm)
Height (6.5 in/165 mm)
Depth (1.24 in/31.5 mm)

Weight:

13.5 ounces (with batteries).

Keyboard:

Membrane switch pad with twelve tactile keys.

Operating Temperature:

14 to 140F (-10C to 60C)

Case:

Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Data Output:

Bi-directional RS232 serial port. Windows® PC interface software.

Display(Two Options): 1/8in VGA grayscale display (240 x 160 pixels). Viewable area 2.4 x 1.8in (62 x 45.7mm). EL backlit (on/off/auto). 25 Hz screen refresh rate.

Ultrasonic Specifications

Measurement Modes:

Pulse-Echo - (General Purpose - uncoated materials).

Interface-Echo - (Precision - thick materials).

Echo-Echo - (Precision—Thin materials & thru-paint).

Pulser:

150 volt square wave pulser.

Receiver:

Manual or AGC gain control with 40dB range, depending on mode selected.

Timing:

40 MHz ultra low power 10 bit digitizer.

Warranty

2 year limited.

Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells. Typically operates for 35 hours on alkaline and 10 hours on NiCad (charger not included).

Auto power off if idle 5 minutes.

Battery status icon.

Measuring

Range:

Interface-Echo Mode: Steel .050–1.0 inch (1.27–25.4mm); Plastics from .005 inch (.127mm).

Echo-Echo Mode: Steel .006–.500 inch (.152–12.7mm).

Pulse-Echo Contact:

Steel .040–10.0 inch (1–254mm); Plastics from .010" (.254mm).

Echo-Echo Contact:

Steel thru-paint .100–3.0 inches (2.54–76.2mm).

Resolution (selectable):

+/- .001 inch (0.01 mm).
+/- .0001 inch (0.001 mm).

Velocity Range:

.0492 to .3936 inches/μs.
1250 to 9999 meters/second.

One and Two Point calibration option, or selection of basic material types.

Units:

English & Metric

Display

Display Views:

Large Digits - Standard thickness view.
Digit Height: 0.400 inch (10mm).

B-Scan - Time based cross section view.
Display speed of 15 secs per screen.

Scan Bar Thickness - 6 readings per second; Viewable in B-Scan and Large Digit views.

Repeatability Bar Graph - Bar graph indicates stability of reading.

Memory

12,000 readings and waveforms (alpha numeric storage).

OBSTRUCT to indicate inaccessible locations.

Memory:

16 megabit non-volatile ram.

Transducer

Transducer Types:

Single Element (1 to 20 MHz).

Locking quick disconnect "00" LEMO connector.

Standard 4 foot cable.

Custom transducers and cable lengths available.

Features

Setups:

18 factory and 46 custom user-defined setups.

Alarm Mode:

Set Hi and Lo tolerances with audible beeper and visual LEDs.

Fast Scan Mode:

Takes 32 readings per second and displays the minimum reading found when the transducer is removed. Display continuously updates while scanning.

Connections

Output: RS232 serial interface. PC software & USB converter cable included.

Transducer Connectors: Two LEMO 00 connectors.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.



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DAKOTA ULTRASONICS

The PVX

Precision A-Scan Thickness Gauge

Highlights:

- ▶ Adjustable square wave pulser provides the flexibility necessary for both high resolution and penetration requirements.
- ▶ Selectable viewing options provide the user with additional flexibility during operation: (RF waveform, +/- Rectified waveform, and Large Digits with Scan Bar).
- ▶ Time based B-Scan feature displays a cross section of the test material. Displays the profile of the opposite surface of the material.
- ▶ Ability to use a variety of single element transducers for specific applications: Standard Delay Line (acrylic and graphite tips for metals and thin plastics), Pencil Delay Line (tough access areas on thin materials), and Contact transducers (variety of applications).
- ▶ Hardware AGC gain control for multiple echo and thru-paint measurement.
- ▶ Multiple calibration options: One-Point, Two-Point, or selection from a Material List.
- ▶ 16 factory setups and 48 user-defined setups. User-defined setups can be edited for custom applications.
- ▶ PVX is equipped with an alpha-numeric data logger to provide increased versatility for those custom reporting needs.
- ▶ The High Speed Scan feature speeds up the inspection process by taking 32 measurements per second. Remove transducer from the test material and display the minimum measurement scanned.
- ▶ Adjustable resolution settings add to the PVX's flexibility.
- ▶ PVX comes complete with our Windows® PC software for transferring data to and from a PC.
- ▶ Auto Find feature locates the detection point(s) and adjusts the display settings to bring the waveform into view.
- ▶ Visual and audible alarm with Hi and Lo limit settings for specific application tolerances.
- ▶ Multiple language support.
- ▶ 2 year limited warranty.



SOUND SOLUTIONS

PVX SPECIFICATIONS

Physical

Size:

Width (2.5in/63.5 mm)
Height (6.5 in/165 mm)
Depth (1.24 in/31.5 mm)

Weight:

13.5 ounces (with batteries).

Keyboard:

Membrane switch pad with twelve tactile keys.

Operating Temperature:

14 to 140F (-10C to 60C)

Case:

Extruded aluminum body with nickel-plated aluminum end caps (gasket sealed).

Data Output:

Bi-directional RS232 serial port. Windows® PC interface software.

Display(Two Options): 1/8in VGA grayscale display (240 x 160 pixels). Viewable area 2.4 x 1.8in (62 x 45.7mm). EL backlit (on/off/auto). 25 Hz screen refresh rate.

Ultrasonic Specifications

Measurement Modes:

Pulse-Echo - (General Purpose - uncoated materials).

Interface-Echo - (Precision - thick materials).

Echo-Echo - (Precision—Thin materials & thru-paint).

Pulser:

Square wave pulser with adjustable pulse width (spike, thin, wide).

Receiver:

Manual or AGC gain control with 40dB range, depending on mode selected.

Timing:

40 MHz ultra low power 10 bit digitizer.

Warranty

2 year limited.



Power Source

Three 1.5V alkaline or 1.2V NiCad AA cells. Typically operates for 35 hours on alkaline and 10 hours on NiCad (charger not included).

Auto power off if idle 5 minutes.

Battery status icon.

Measuring

Range:

Interface-Echo Mode: Steel .050–1.0 inch (1.27–25.4mm); Plastics from .005 inch (.127mm).

Echo-Echo Mode: Steel .006–.500 inch (.152–12.7mm).

Pulse-Echo Contact:

Steel .040–10.0 inch (1–254mm); Plastics from .010" (.254mm).

Echo-Echo Contact:

Steel thru-paint .100–3.0 inches (2.54–76.2mm).

Resolution (selectable):

+/- .001 inch (0.01 mm).
+/- .0001 inch (0.001 mm).

Velocity Range:

.0492 to .3936 inches/μs.
1250 to 9999 meters/second.

One and Two Point calibration option, or selection of basic material types.

Units:

English & Metric

Display

Display Views:

A-Scan - Rectified +/- (half wave view) RF (full waveform view).

B-Scan - Time based cross section view. Display speed of 15 secs per screen.

Large Digits - Standard thickness view. Digit Height: 0.400 inch (10mm).

Scan Bar Thickness - 6 readings per second; Viewable in B-Scan and Large Digit views.

Repeatability Bar Graph - Bar graph indicates stability of reading.

Memory

12,000 readings and waveforms (alpha numeric storage).

OBSTRUCT to indicate inaccessible locations.

Memory:

16 megabit non-volatile ram.

Transducer

Transducer Types:

Single Element (1 to 20 MHz).

Locking quick disconnect "00" LEMO connector.

Standard 4 foot cable.

Custom transducers and cable lengths available.

Features

Setups:

16 factory and 48 custom user-defined setups.

Gates:

Single gate in contact mode; Single gate with holdoff in inter-face-echo, echo-echo, and plastics mode; Adjustable threshold. Multiple Measurement Modes: Selectable modes for use with a variety of applications.

Alarm Mode:

Set Hi and Lo tolerances with audible beeper and visual LEDs.

Fast Scan Mode:

Takes 32 readings per second and displays the minimum reading found when the transducer is removed. Display continuously updates while scanning.

Connections

Output: RS232 serial interface. PC software & USB converter cable included.

Transducer Connectors: Two LEMO 00 connectors.

Certification

Factory calibration traceable to NIST & MIL-STD-45662A.

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